



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/416,098	10/12/1999	TERESA H. MENG	259697	5713

4586 7590 08/09/2006

ROSENBERG, KLEIN & LEE
3458 ELLICOTT CENTER DRIVE-SUITE 101
ELLICOTT CITY, MD 21043

EXAMINER

ZHENG, EVA Y

ART UNIT	PAPER NUMBER
----------	--------------

2611

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/416,098	MENG ET AL.	
	Examiner	Art Unit	
	Eva Yi Zheng	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,8,9,15,16,18,19,22,23,29,31,34 and 35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,8,9,15,16,18,19,22,23,29,31,34 and 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/12/99 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-2,4-5,8-9,15-16,18-19,22-23,29, 31,and 34-35 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 5 is objected to because of the following informalities:

On line 2, please change: "means" to – mean --.

3. Claim 15 is objected to because of the following informalities:

claim 15 is a method type of claim. Line 4-6 appears to be apparatus type of claim. In order to avoid the hybrid of two types of claim, examiner suggests claim to be changed to – A method adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA, and TDMA, wherein the communication system comprises a first transceiver unit operable to communicates in continuous bidirectional manner for the direct exchange of information with a second transceiver unit using a common frequency, the method comprising: --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

Art Unit: 2611

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claimed subject matter "means for performing a correlation" was not taught in specification.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 4, 5, 8, 15, 16, 18, 19, 22, 34 and 35 are rejected under 35 U.S.C. 102(e) as being unpatentable by Knutson et al (US 6,470,005).

a) Regarding to claim 1, Knutson et al disclose a device adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA and TDMA (TDMA system as shown in Fig. 1), comprising:

a first transceiver unit (base unit 110 in Fig. 1) operable to communicates in continuous bidirectional manner for the direct exchange of information with a second transceiver unit (wireless handset 120 in Fig. 1) using a common frequency (inherent in TDMA system with carrier frequency);

means for detecting responsive to a continuous comparison of received and detected signals a comparative offset between respective common frequency references used locally by the first and second transceiver units in a first signal transmitted by the first transceiver unit and received by the second transceiver unit disposed remotely therefrom (carrier tracking loop (CTL) is continues comparison; 227 in handset 120 of Fig. 2; Col 5, L14-16); and

means for adjusting the common frequency in accordance with the offset detected responsive to the continuous comparison of received and detected signals in a second signal to be transmitted by the second transceiver unit and to be received by the first transceiver unit to correct for an error in the carrier frequency reference used locally at the first transceiver unit, so that the effects of the offset to be perceived by the first transceiver unit will be substantially reduced in preemptive manner, the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common frequency reference of the first transceiver unit (229 in Fig. 2; Col 5, L14-27; abstract).

b) Regarding to claim 2, Knutson et al disclose a device according to claim 1, wherein the common frequency is a carrier frequency (inherent in TDMA system; carrier frequency offset detection; Col 5, 14-35).

- c) Regarding to claim 4, Knutson et al disclose a device according to claim 2, wherein the means for detecting the offset includes means for performing a correlation on a digital representation of the first signal so as to lock onto the offset in the carrier frequency (inherent as rotator; Col 5, L14-40).
- d) Regarding to claim 5, Knutson et al disclose a device according to claim 2, wherein the means for adjusting the common frequency includes a means for digitally shifting data in frequency to be transmitted in accordance with the carrier frequency and the offset (226 in Fig. 2; Col 5, L14-17; rotator inherent as shifting and removing).
- e) Regarding to claim 8, Knutson et al disclose a device according to claim 2, wherein the means for detecting the offset includes means for locking onto the offset in the carrier frequency and for producing an output signal corresponding thereto (inherent as carrier tracking loop (CTL)).
- f) Regarding to claim 15, rejection is made with similar reasons as claim 1.
- g) Regarding to claim 16, rejection is made with similar reasons as claim 2.
- h) Regarding to claim 18, rejection is made with similar reasons as claim 4.
- i) Regarding to claim 19, rejection is made with similar reasons as claim 5.
- j) Regarding to claim 22, rejection is made with similar reasons as claim 8.
- k) Regarding to claim 35, Knutson et al disclose a device adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA and TDMA (TDMA system as shown in Fig. 1), the device comprising:
 - a first transceiver unit (base unit 110 in Fig. 1) operable to communicates in continuous bidirectional manner for the direct exchange of information with a second

Art Unit: 2611

transceiver unit (wireless handset 120 in Fig. 1) using a common frequency (inherent in TDMA system with carrier frequency);

means for detecting responsive to a continuous comparison of received and detected signals a comparative offset between respective common frequency references used locally by the first and second transceiver units in a first signal transmitted by the first transceiver unit and received by the second transceiver unit disposed remotely therefrom (carrier tracking loop (CTL) is continues comparison; 227 in handset 120 of Fig. 2; Col 5, L14-16);

means for communicating information corresponding to the detected offset from the second transceiver unit to the first transceiver unit (228 and 218 in Fig.2); and

means for adjusting the common frequency in accordance with the offset detected responsive to the continuous comparison of received and detected signals in a second signal to be transmitted by the first transceiver unit and to be received by the second transceiver unit to correct for an error in the carrier frequency reference used locally at the second transceiver unit, so that the effects of the offset to be perceived by the first transceiver unit will be substantially reduced in preemptive manner, the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common frequency reference of the second transceiver unit (Col 5, L41-46; 229 in Fig. 2; Col 5, L14-27; abstract).

l) Regarding to claim 35, Knutson et al disclose a device adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA and TDMA (TDMA system as shown in Fig. 1), the device comprising:

a first transceiver unit (base unit 110 in Fig. 1) operable to communicates in continuous bidirectional manner for the direct exchange of information with a second transceiver unit (wireless handset 120 in Fig. 1) using a common frequency (inherent in TDMA system with carrier frequency);

means for detecting responsive to a continuous comparison of received and detected signals a comparative offset between respective common frequency references used locally by the first and second transceiver units in a first signal transmitted by the first transceiver unit and received by the second transceiver unit disposed remotely therefrom (carrier tracking loop (CTL) is continues comparison; 227 in handset 120 of Fig. 2; Col 5, L14-16);

means for communicating information corresponding to the detected offset from the second transceiver unit to the first transceiver unit (228 and 218 in Fig.2); and

means for adjusting the common frequency in accordance with the offset detected responsive to the continuous comparison of received and detected signals in a second signal to be transmitted by the second transceiver unit and to be received by the first transceiver unit to correct for an error in the carrier frequency reference used locally at the first transceiver unit, so that the effects of the offset to be perceived by the first transceiver unit will be substantially reduced in preemptive manner, the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common frequency reference of the first transceiver unit (229 in Fig. 2; Col 5, L14-27; abstract).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knutson et al (US 6,470,005) in view of Jones et al (US 6,876,675).

a) Regarding to claim 29, Knutson et al disclose a device adapted to be used in a first transceiver unit (110 in Fig. 1) that can communicate with a second transceiver unit (120 in Fig. 2) using a common carrier frequency (inherent as TDMA system), the device comprising:

a frequency shift block that is coupled to received offset information and digital data to be transmitted by the first transceiver unit in a second signal to be received by the second transceiver unit disposed remotely therefrom, the frequency shift block being adapted to digitally shift the digital data in frequency in accordance with the common carrier frequency and the carrier frequency offset to correct for an error in the carrier frequency reference used locally at the second transceiver unit, so that the effects of the offset to be perceived by the second transceiver unit will be substantially reduced in preemptive manner for continuous wireless bi-directional communication between the first and second transceiver units for the direct exchange of information (Col 5, L41-46; 227 in Fig. 2; abstract).

Knutson et al. disclose detection of a comparative carrier frequency offset (carrier tracking loop (CTL) is continues comparison; 227 in handset 120 of Fig. 2; Col 5, L14-16), but failed to disclose the specific teaching of a frequency lock loop (FLL).

However, Jones et al., disclose an OFDM system comprise a FLL exists in frequency control (228 and 208 in Fig. 2). FLL used to lock the transmitter variable frequency oscillator of the first transceiver to the transmitter variable frequency oscillator of the second transceiver (Col 4, L23-39).

Therefore, it is obvious to one of ordinary skill in the art to implement the FLL by Jones et al in the TDMA system of Knutson et al. By doing so, synchronizing transmitter and receiver parameters, provide fast and accurate carrier frequency offset detection and correction.

10. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knutson et al (US 6,470,005) in view of Jones et al (US 6,876,675), further in view of Evens et al (US 5,794,11) (Applicant Admitted Prior Art).

a) Regarding to claim 31, Knutson et al. disclose a device adapted to be used in a first transceiver unit (110 in Fig. 1) that can communicate in continuous bidirectional manner for the direct exchange of information with a second transceiver unit (120 in Fig. 2) using a common carrier frequency (inherent as TDMA system).

Knutson et al. failed to disclose the specific teaching of a frequency lock loop (FLL), a crystal oscillator, and a variable adjustable device.

However, Jones et al., in the same field of endeavor, disclose an OFDM system comprise a FLL exists in frequency control (228 and 208 in Fig. 2). FLL used to lock the transmitter variable frequency oscillator of the first transceiver to the transmitter variable frequency oscillator of the second transceiver (Col 4, L23-39).

Therefore, it is obvious to one of ordinary skill in the art to implement the FLL by Jones et al in the handset transmitter of a TDMA system by Knutson et al, to detect a comparative carrier frequency offset in the first signal. By doing so, synchronizing transmitter and receiver parameters, provide fast and accurate carrier frequency offset detection and correction.

Moreover, Evens et al., in the same field of endeavor, disclose a crystal oscillator that supply a reference frequency for modulating (5 in Fig. 2), and a variably adjustable device (constitute as programmable synthesizer; 11 in Fig. 2), where the variable adjusted device being adapted to adjust the reference frequency of the crystal oscillator in accordance with the offset signal to correct for an error (Col 4, L11-22).

Therefore, it is obvious to one of ordinary skill in art to implement the crystal oscillator and variable adjustable device by Evens et al. in the handset transceiver of a TDMA system by Knutson et al. By doing so, measuring and correcting frequency offset. And provide an accurate and efficient TDMA system.

11. Claims 9 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knutson et al (US 6,470,005) in view of Evens et al (US 5,794,11) (Applicant Admitted Prior Art).

Regarding to claims 9 and 23, Knutson et al disclose all the subject matters above except for the specific teaching of means for adjusting the common frequency includes means for variable adjusting a reference frequency output by a crystal oscillator.

However, Evens et al., in the same field of endeavor, disclose a crystal oscillator that supply a reference frequency for modulating (5 in Fig. 2), and a variably adjustable device (constitute as programmable synthesizer; 11 in Fig. 2), where the variable adjusted device being adapted to adjust the reference frequency of the crystal oscillator in accordance with the offset signal to correct for an error (Col 4, L11-22).

Therefore, it is obvious to one of ordinary skill in art to implement the crystal oscillator and variable adjustable device by Evens et al. in the handset transceiver of a TDMA system by Knutson et al. By doing so, measuring and correcting frequency offset. And provide an accurate and efficient TDMA system.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

Art Unit: 2611

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Zheng whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Zheng
Examiner
Art Unit 2611

July 26, 2006


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER